



## Subject card

Subject name and code	Photogrammetry and remote sensing, PG_00042504						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Geodesy -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Krystyna Michałowska				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	10.0	10.0	0.0	0.0	0.0	20
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	20		5.0		50.0	75
Subject objectives	Acquainted with tools and technologies used today in photogrammetry and remote sensing. Understanding the photogrammetric products and remote sensing studies.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U05] can rely on scientific sources for modern methods and technologies, and propose trends in the development of methods and rules for acquiring, filtering, processing and analyzing data		The student knows how to correct the distortion occurring on aerial / satellite images and he is able to assess their suitability for the development of other product e.g: DTM. The student is able to interpret the content of aerial photos and satellite images. He can perform a classification based on satellite images.		[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information		
	[K7_W12] has knowledge of contemporary and useful principles on data acquisition, filtration, processing and analysis		The student has knowledge of the instruments and technologies used today in photogrammetry and remote sensing. The student knows what distortions occur on aerial photos and satellite images.		[SW1] Assessment of factual knowledge		
Subject contents	Physical basics of photogrammetry and remote sensing. Currently operating remote sensing systems. Digital image processing (geometric and radiometric correction). Improving the quality of a digital image (working with histogram, filtration, operations between images from different spectral channels- color composite images, classification). Photogrammetry and remote sensing-areas of applications. Photogrammetric projects based on close-range and aerial photos.						
Prerequisites and co-requisites	Knowledge of the laws of physics associated with electromagnetic radiation.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	test		60.0%		60.0%		
	project		60.0%		40.0%		

Recommended reading	Basic literature	<p>Kurczyński Z., Preuss P.: Podstawy fotogrametrii, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2003</p> <p>Adamczyk J., Będkowski K.: Metody cyfrowe w teledetekcji, Wydawnictwo SGGW, Warszawa 2005</p> <p>Kurczyński Z.: Lotnicze i satelitarne obrazowanie Ziemi; Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2006</p> <p>Ciołkosz A. Miszański J., Olędzki J.: Interpretacja zdjęć lotniczych, PWN, Warszawa 1999</p>
	Supplementary literature	Software manuals
	eResources addresses	
Example issues/ example questions/ tasks being completed	<p>Contemporary satellite systems-review.</p> <p>Developing the landuse map on the basis of supervised and unsupervised classification of satellite scenes.</p>	
Work placement	Not applicable	